



Habitat Management and Monitoring Plan

Land at Caldyne Park, Turners Hill Road, Crawley, West Sussex, RH10 4NB

February 2026



Arun Ecology Ltd

Registration in England and Wales. Company number: 12524764

Registered Address: Russetts, Hayes Lane, Slinfold, West Sussex

Email: enquiries@arunecology.com – www.arunecology.com



Contents

1. Development Information	6
1.1 Development Background	6
1.2 Scope of the Habitat Management and Monitoring Plan	6
2. Method.....	7
2.1 General Approach	7
2.2 Sources of Information	7
3. Habitat Management and Monitoring Plan Considerations.....	8
3.1 Background	8
3.2 Landscape Design Considerations.....	8
3.3 Ecology Information	8
3.4 Historic Environment and Earth Heritage	8
3.5 Environmental Information.....	8
3.6 Land Use Information.....	8
4. Baseline Habitat Information.....	9
4.1 Baseline Habitat within the Development Boundary	9
5. Proposed Onsite Habitat Creation, Habitat Enhancement and Ecological Enhancement.....	10
5.1 Habitat Creation.....	10
5.2 Enhancement of Retained Habitats	16
5.3 Additional Ecological Enhancements	20
6. Works Schedule - Habitat Creation.....	22
7. Risk Management Strategy	24
8. Habitat Management and Monitoring Plan.....	26
9. Auditing and Reporting	30
Figure 1 Biodiversity Net Gain Baseline Habitat Plan	4
Figure 2 Biodiversity Net Gain Proposed Habitat Plan	5

Document Information

Client	DD Architects
Project	Land at Caldyne Park, Turners Hill Road, Crawley, West Sussex, RH10 4NB.
Version	Draft
Project team	Hannah Baker – Project Director
Report reference	C-DDA-001_BNG_HMMP

Revision number	Date of issue	Author	Reviewer
001	02/02/2026	Amy Oldham BSc (Hons) – Consultant Ecologist	Hannah Baker BSc (Hons) MSc, ACIEEM - Director and Principal Ecologist

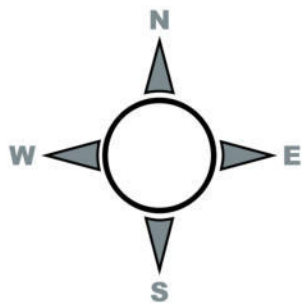
Document Ownership: Arun Ecology Ltd

Disclaimer

This report has been issued to the commissioning party for their sole use as part of the intended project as outlined above. No other party may use, make use or rely upon the contents of this report without obtaining prior written permission from Arun Ecology Ltd. Arun Ecology Ltd accepts no liability for use of this report other than for its intended purpose at the time the report was prepared and issued and the agreement with the commissioning party under which the work was completed.

The content of this report has been provided in accordance with the provisions of the CIEEM Code of Professional Conduct and constitutes the professional opinion of Arun Ecology Ltd from an ecological point of view. The professional opinion of Arun Ecology Ltd does not constitute legal opinion, nor does it constitute structural or arboricultural advice. No warranty that is either expressed or implied, is provided by Arun Ecology Ltd in relation to the content of this report. Arun Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misrepresentation made by the commissioning party or any other party. Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed or were interpreted at the time that Arun Ecology Ltd completed the work. No independent verification has been made of any information by third parties used to inform this report and Arun Ecology Ltd accepts no responsibility for errors and omissions provided in such information.

This report is the copyright of Arun Ecology Ltd. All rights reserved. Any unauthorised reproduction or usage of this report is strictly prohibited.



Legend

- Development boundary
- Ancient woodland
- Baseline habitat
- Modified grassland
- Developed land, sealed surface
- Artificial unvegetated, unsealed surface
- Lowland mixed deciduous woodland
- Other woodland, broadleaved
- Other woodland, mixed

1-16: Habitat baseline reference number

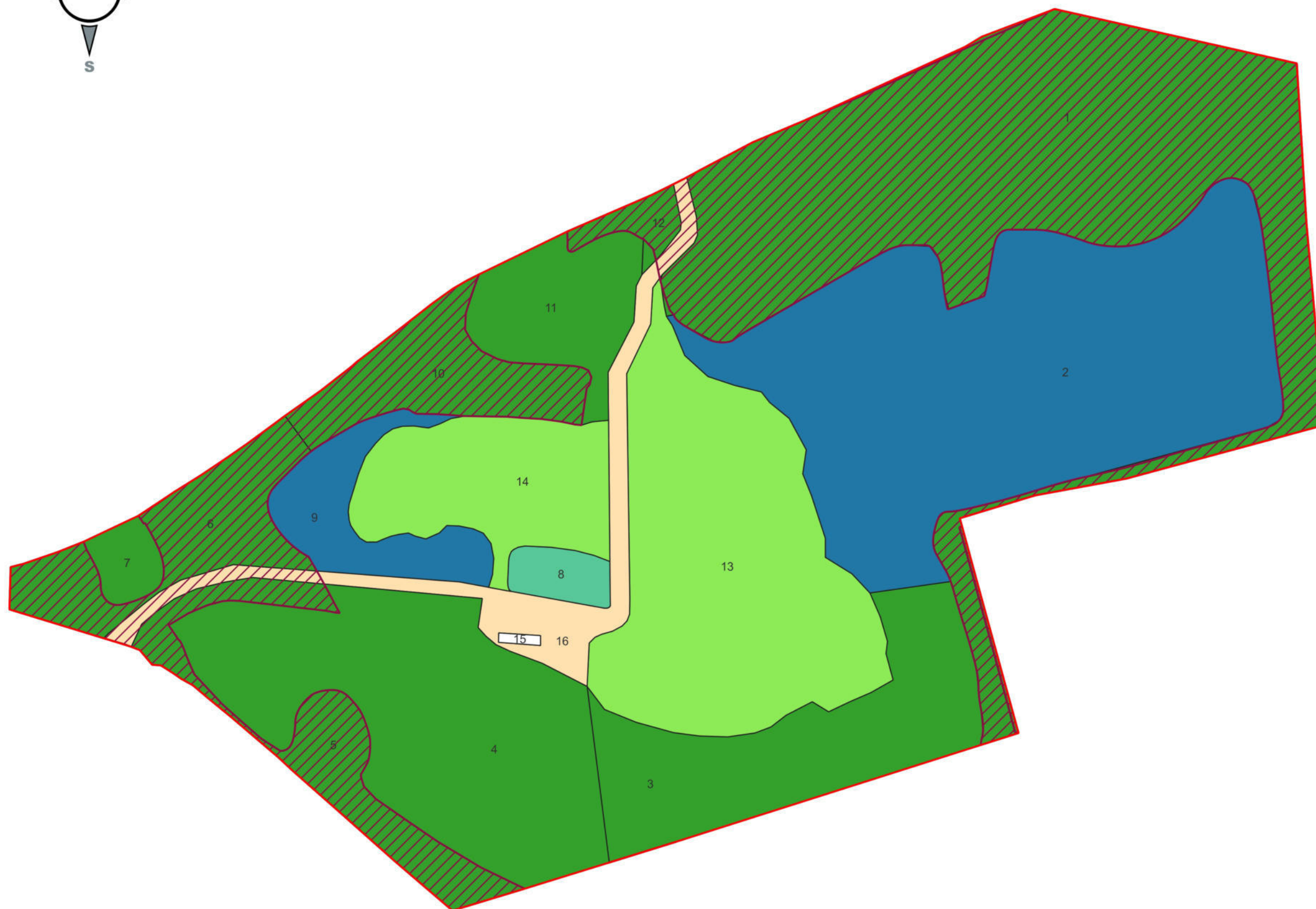
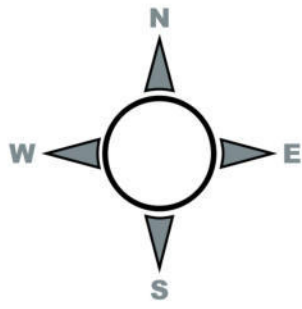


Figure Title:		
BNG Baseline Habitat Plan		
Client/ Project number:		
DD Architects C-DDA-001		
Figure number:	Revision:	Scale at A3:
1	1	1:1300
Cartographer:	Date drawn:	Approver:
AO	28/01/2026	HB



Legend

- Development Boundary
- Ancient woodland
- Proposed Habitat
 - Other neutral grassland
 - Pond (non-priority)
 - Artificial unvegetated, unsealed surface
 - Lowland mixed deciduous woodland
 - Traditional orchard
 - Developed land, sealed surface
 - Vegetated garden
 - Mixed scrub
- Individual trees
- Ecological Enhancements
 - Integrated bat box
 - Integrated house sparrow box
 - Integrated insect box
 - Mounted bat box
 - Refugia/ hibernacula
 - Deadwood log pile
 - Deadwood log stacks
 - Soil banks

1-23: Habitat creation reference number

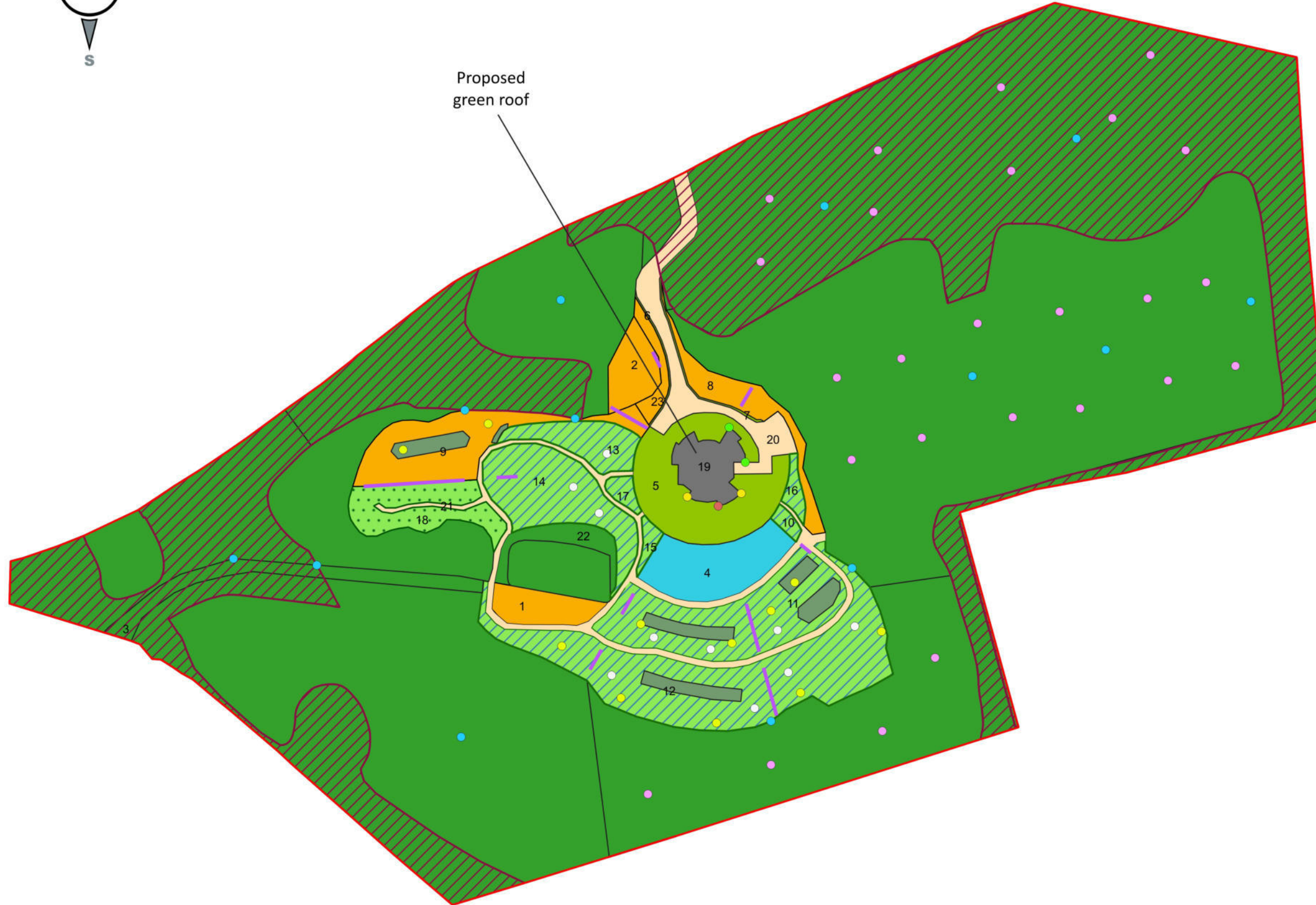


Figure Title:		
BNG Proposed Habitat Plan		
Client/ Project number:		
DD Architects C-DDA-001		
Figure number:	Revision:	Scale at A3:
2	1	1:1300
Cartographer:	Date drawn:	Approver:
AO	30/01/2026	HB



1. Development Information

1.1 Development Background

1.1.1 The development information and an overview of the development background is outlined below in Table 1.

Table 1 – Development Information.

Landowner	DD Architects
Development Location	Land at Caldyne Park, Turners Hill Road, Crawley, West Sussex, RH10 4NB.
Development Type	Residential Development
Local Planning Authority	Mid-Sussex District Council
Planning Reference	DM/24/2799
Planning Status	Application submitted – consultation ongoing
Landscape Layout	Nicholas Dexter Ltd Landscape Layout Drawing ID: 0364 – 1000 – P04
Development Phasing	The development will be delivered in a single phase.
Proposed Land Manager	Appointed Contractor (Tendering process to be completed)
Location of Habitat Management	Onsite
Legal Agreement	There is no legal agreement finalised at this time. Any section 106 or other legal agreement will cover a minimum period of 30 years for on-site and off-site habitat creation.
Funding Agreement	The habitat management will be funded by the landowner.
BNG Register Reference	N/A
Biodiversity Net Gain Metric Revision/Title	C-DDA-001_BNG_Metric

1.2 Scope of the Habitat Management and Monitoring Plan

Extent

- 1.2.1 The Habitat Management and Monitoring Plan (HMMP) is limited to areas within the development boundary where on-going management can be secured via a s106 legal agreement (See Figure 1 and Figure 2).
- 1.2.2 This HMMP does not include on-going management and monitoring of offsite habitat creation that is provided by any third-party habitat banks as this is not required for the development.

Aims and Objectives

- 1.2.3 The HMMP sets the following aims and objectives:
- To identify the opportunities offered by the development to deliver measurable net gains for biodiversity as defined under the requirements of The Environment Act, 2021, set at a minimum threshold of 10% gain;
 - To identify the opportunities of the development to achieve ‘additionality’ by incorporating ecological enhancements that are not universally measurable;
 - Outline the design of any ecological enhancements and how this will be delivered as part of the development;
 - Provide a strategy, management and monitoring plan to outline how ecological enhancements will be successfully implemented and retained as part of the development; and
 - Provide details on the location of the ecological enhancements supported by digitized mapping.
- 1.2.4 The aims and objectives of the HMMP are based on the BNG calculation for development which sets out a provisional +30.73% net gain in habitat units. The baseline value for hedgerows and watercourses is zero and therefore, the biodiversity gain requirement is already met for hedgerows and watercourses.

Reason

- 1.2.5 To ensure the development is compliant with:
- The Environment Act, 2021 (and relevant secondary legislation);
 - National Planning Policy Framework (NPPF), 2024; and



- Mid Sussex District Adopted Local Plan 2014-2031 (2018).

2. Method

2.1 General Approach

- 2.1.1 This section outlines the approach to inform the HMMP and ensure the proposed aims and objectives can be achieved in practice.

2.2 Sources of Information

Desk Study

- 2.2.1 To ensure the proposals of this HMMP do not result in adverse impacts on any sites or habitats of biodiversity value, the following sources of information have been sought as part of the Preliminary Ecological Appraisal (PEA) Report for the development (see report reference in Table 2):

- RAMSAR, Special Conservation Areas (SACs) and Special Protection Areas (SPAs), (including potentially designated sites), Sites of Specific Scientific Interest (SSSI) and locally designated sites – within 2 km of the development boundary;
- All other non-statutory designated sites – within 1 km of the development boundary;
- Habitats of Principle Importance (HPI), Ancient woodland and Rivers – within 2 km of the development boundary; and
- Ponds – within 0.5 km of the development boundary.

- 2.2.2 To ensure the proposed ecological enhancement and habitat creation is appropriate to the surrounding landscape, details on the National Character Region have been sought.

- 2.2.3 To gain an understanding of the suitability of the site to support certain habitat types, an understanding of the site geology was sought. The sites soil type has not been sought at this time but will be confirmed prior to commencement of the development.

- 2.2.4 Sources of information within the study area for the desk study were as follows;

- The Multi-Agency Geographical Information for the Countryside (MAGIC) webpage;
- Government open-source GIS datasets;
- OS Mapping District Data;

- Mid Sussex District Adopted Local Plan 2014-2031 (2018);
- Satellite images (powered by google via QGIS 3.38);
- British Geological Society – Geology Viewer; and
- LandIS – SoilScape Viewer.

Field Surveys

- 2.2.5 The PEA for the development boundary (see Table 2) included a UK Habitat Classification Survey (hereafter UK Hab Survey) to define the habitat types, assess the conservation value of any habitats present and assess the habitats suitability to act as an ecological receptor for species of conservation concern.

- 2.2.6 A baseline condition assessment of habitats within the development boundary was undertaken to inform the baseline Biodiversity Net Gain calculation and set appropriate condition assessment targets for proposed habitat types in line with statutory condition assessment criteria.

Relevant Documents and Reports

- 2.2.7 The documents outlined below in Table 2 are considered relevant and have been used to identify any ecological considerations within the development boundary and to inform the HMMP:

Table 2 Relevant documents used in this HMMP.

Document Reference/ Title		Author	Date
C-DDA-001-001-001_PEA_Report	Preliminary Ecological Appraisal Report	Arun Ecology Ltd	February 2026
C-DDA-001_BNG_Metric	BNG Statutory Metric	Arun Ecology Ltd	February 2026
C-DDA -001_BNG_Condition Assessment	BNG Condition Assessment	Arun Ecology Ltd	February 2026
C-DDA-001_BNG_Gain Plan	BNG Gain Plan	Arun Ecology Ltd	February 2026
C-DDA-001_PMS	Precautionary Method Statement – Hazel Dormice	Arun Ecology Ltd	February 2026
Nicholas Dexter Ltd Landscape Layout Drawing ID: 0364 – 1000 – P04	Landscape Layout	Nicholas Dexter Ltd	February 2026



3. Habitat Management and Monitoring Plan Considerations

3.1 Background

- 3.1.1 This section outlines the baseline information that has informed both the design and delivery of habitat retention, enhancement and creation on-site to ensure the aims of the HMMP are appropriately designed and reasonably likely to be successful in the defined management period.

3.2 Landscape Design Considerations

Character Regions

- 3.2.1 The development boundary is located within the High Weald National Character Area (122 – High Weald). The habitat creation and enhancement that has been proposed within this HMMP are consistent with this Character Region.

Soil Information

- 3.2.2 LandIS mapping indicates that the development boundary is located on slightly acid loamy and clayey soils with impeded drainage.

3.3 Ecology Information

- 3.3.1 The following ecological information is a consideration to the development:
- There is irreplaceable habitat (ancient woodland) and Habitats of Principal Importance (HPI) (lowland mixed deciduous woodland) within the development boundary.
 - Badgers and other mammal burrows, bats (commuting and foraging), nesting birds, hazel dormice, hedgehogs, reptiles, invasive non-native species (Rhododendron) and protected plants (Snake’s head fritillary) are a material consideration for the development.
- 3.3.2 To ensure there are no adverse impacts on the above ecological considerations, the HMMP will be completed in accordance with the mitigation outlined for irreplaceable habitats, HPI and species of conservation concern in the Preliminary Ecological Appraisal (PEA) Report. This will be communicated to operatives through a tool-box-talk which should be secured through a condition of planning.

3.4 Historic Environment and Earth Heritage

- 3.4.1 There are no known historic environment or earth heritage constraints within the development boundary at this time.

3.5 Environmental Information

Underlying Geology and Site Soil and Substrate Baseline

- 3.5.1 The underlying geology is a Tunbridge Wells Sand Formation – Sandstone and siltstone, interbedded. Sedimentary bedrock formed between 139.4 and 133.9 million years ago during the Cretaceous period.
- 3.5.2 No soil information on the soil type and formation has been collected at this time. The habitats proposed within the HMMP are widespread habitats that cover a range of soil conditions. However, the soil will be subject to testing to ensure the successful implementation of any proposed habitat.
- 3.5.3 In particular, soil testing should include assessment for potential contaminants, due to evidence of poor habitat establishment from earlier habitat creation attempts within the site. This will allow any constraints relating to soil quality or contamination to be identified and addressed at an early stage, and will inform any necessary soil treatment, removal or replacement required to support habitat establishment.

3.6 Land Use Information

Previous Land Use

- 3.6.1 It is our understanding that the site consists of former MOD land, which has been subject to ancient woodland clearance, use as a car park and a woodland planting scheme which failed.

Proposed Land Use

- 3.6.2 The primary proposed land use within the development boundary will be residential with large areas offset within the site for habitat creation.

Public Access

- 3.6.3 There will be no public access within the development boundary.



4. Baseline Habitat Information

4.1 Baseline Habitat within the Development Boundary

4.1.1 The information provided in Table 3 formed the baseline habitat criteria for habitats as part of the BNG assessment for the development (see Figure 1).

Table 3 - BNG Baseline Habitat Information.

Habitat Type	Parcel Reference	Irreplaceable Habitat	Priority Habitat	Area (ha)	Distinctiveness	Strategic significance	Retained Area (ha)	Enhanced Area	Baseline Conditions	Limitations and Notes (on any Degradation Prior to Assessment).	Existing Management and Monitoring
Lowland mixed deciduous woodland	1, 5, 10 and 12	Yes	Yes	1.7108 total	High	Medium	0	1.7108 total	Poor	None recorded	None
Other woodland; broadleaved	2 and 9	No	No	1.365 total	Medium	Medium	0	1.365 total	Poor	None recorded	None
Lowland mixed deciduous woodland	3, 4, 7 and 11	No	Yes	1.3283 total	High	Medium	0	1.3283 total	Poor	None recorded	None
Lowland mixed deciduous woodland	6	Yes	Yes	0.2082	High	Medium	0	0.2082	Moderate	None recorded	None
Other woodland; mixed	8	No	No	0.0473	Medium	Medium	0	0.0473	Poor	None recorded	None
Modified grassland	13 and 14	No	No	1.0137 total	Low	Low	0	0	Poor	None recorded	None
Developed land, sealed surface	15	No	No	0.0038	V. Low	High	0	0	N/A - Other	None recorded	None
Artificial unvegetated, unsealed surface	16	No	No	0.1972	V. Low	High	0	0	N/A - Other	None recorded	None



5. Proposed Onsite Habitat Creation, Habitat Enhancement and Ecological Enhancement

5.1 Habitat Creation

5.1.1 The habitat creations proposed as part of the development that falls within the scope of the HMMP are outlined below in Table 4 and displayed in Figure 2.

Table 4 – Habitat creation proposed within the development boundary.

Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
Mixed scrub	1, 2, 8, 9 and 23	0.2072 total	Medium	Medium	Moderate	5	- Criteria met: A, C, D. - Criteria not met: B, E.	- A diverse species mix representative of lowland dry scrub communities on neutral soils with at least 3 native woody species will be chosen for planting. All species will be native to the UK and be of local provenance and include: 70% formed from a choice of blackthorn (<i>Prunus spinosa</i>), buckthorn (<i>Rhamnus cathartica</i>), hazel (<i>Corylus avellana</i>), goat willow (<i>Salix caprea</i>), dogwood (<i>Cornus sanguinea</i>) and hawthorn (<i>Crataegus monogyna</i>); 25% from a choice of dog rose (<i>Rosa canina</i>), guelder rose (<i>Viburnum opulus</i>), spindle (<i>Euonymus europaeus</i>) or holly (<i>Ilex aquifolium</i>); and 5% from a choice of yew (<i>Taxus baccata</i>), honeysuckle (<i>Lonicera periclymenum</i>) bramble (<i>Rubus fruticosus</i>), ivy (<i>Hedera helix</i>) and native clematis (<i>Clematis vitalba</i>). - The following method of creation will be followed: - The ground will typically be prepared for the planting of mixed scrub by initially digging a trench that is approximately 1.5 m wide (or a hole for individual shrubs) and to a depth of approximately 45 cm (the width and depth of the trench should be judged on-site at the time of planting based on the site soil conditions and available space) with any vegetation removed to reduce competition with planted shrubs. - Mixed scrub will be planted between November – March in suitable weather conditions. It may be possible to plant at other times of the year where there are sustained periods of suitable weather that provide appropriate conditions for planting. - The mixed scrub will be planted with transplanted shrubs, with plants spaced in two rows separated by 45 cm (where possible) and with approximately six plants planted per meter. A mulch could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low.



Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
								○ All shrubs will be planted with biodegradable guards to protect them from damage (where required) and will also be planted with a supporting cane/ stake to encourage vertical growth. • The planting of the scrub will be designed to form a well-developed, structurally diverse edge with the adjacent woodland habitats. This edge will include a mosaic of scattered shrubs and herbaceous vegetation maintained through selective cutting or thinning to prevent abrupt boundaries and support a structural diversity consistent with moderate condition requirements.
Pond	4	0.0703	Medium	Medium	Good	5	• Criteria met: A, C, D, E, F, G, H, I • Criteria not met: B	• A large pond will be created on existing modified grassland (parcel ref: 13) as part of the development, using the following method. <u>Soil preparation and excavation</u> • The area where the pond is proposed will first be prepared by the removal of the existing vegetation layer. • The pond basin will be excavated using a mechanical excavator to form a varied profile. • The excavation will include: ○ Shallow marginal shelves (0–300 mm depth). ○ A deeper central area (up to approximately 1.5–2.0 m depth). • Excavated material will be reused on site where appropriate or removed where unsuitable (subject to soil testing), avoiding smothering of retained habitats. <u>Water retention and lining</u> • Compaction of the pond base will be undertaken where necessary to aid water retention. • If the substrate proves too free-draining, a natural clay seal or synthetic clay material will be installed to ensure the pond retains water. • The pond will not be connected to any surface water drainage systems or artificial pipework. <u>Planting</u> • The pond will be planted using native emergent, floating and submerged plants species of local provenance, that could include:- ○ Floating plants: Common water-crowfoot (<i>Ranunculus aquatilis</i>); broad leaved pond weed (<i>Potamogeton Natans</i> (for the deep central bowl)); and white-water lily (<i>Nymphaea alba</i>). ○ Submerged aquatic plants: water violet (<i>Myriophyllum spicatum</i>); rigid hornwort (<i>Ceratophyllum demersum</i>); spiked water milfoil (<i>Hottonia palustris</i>); and water starwort (<i>Callitriche</i>). ○ Marginal plants: Yellow flag iris (<i>Iris Pseudacorus</i>); purple loosestrife (<i>Lythrum salicaria</i>); common rush (<i>Juncus effusus</i>); marsh marigold (<i>Caltha palustris</i>); lesser water plantain (<i>Baldellia Ranunculoides</i>); lesser



Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
								pond sedge (<i>Carex acutiformis</i>); greater pond sedge (<i>Carex riparia</i>); forget-me-not (<i>Myosotis scorpioides</i>); water mint (<i>mentha aquatica</i>); and floating sweet grass (<i>Glyceria fluitans</i>). - Planting will be undertaken using plug plants or small coir rolls at low density to allow for natural colonisation and structural diversity. - No topsoil will be introduced within the pond basin in order to limit nutrient input and excessive vegetation growth.
Other neutral grassland	10 - 17	0.5196 total	Medium	Medium	Moderate (10, 11, 12, 13, 15, 16 and 17) and poor (14)	5 years for moderate and 2 years for poor	- Criteria met: A, B, C, D, E. - Criteria not met: F	Eight parcels of other neutral grassland that meet the definition of other neutral grassland under the UKHab classification system will be created within the development boundary. Seven of these parcels will be moderate condition and one will be poor condition. Soil preparation - The areas where the creation of other neutral grassland is proposed will first be prepared by the removal of the existing vegetation layer. - The bare ground will then be prepared with the use of a harrow or rake to produce a medium tilth. Thereafter, the soil will be made firm by treading or rolling. - Certain parcels will have a varied topography to create a combination of wet and free draining areas. Seeding - Seeding will be undertaken with the following specifications: General area: Where practicable, locally source seed or green hay from a suitable donor meadow should be used to inform species composition, otherwise, an appropriate native wildflower seed mix of local provenance should be used. However, if this is not possible, the commercial seed mix Emorsgate EM10 – Tussock Grass Mixture with Wildflower can be used. This mixture can be sown up to 10-15 g/m². The seed mixture is comprised of 80% grasses and 20% wildflowers and contains a total of 26 species. Pond edge: The pond edge will be sown with the Emorsgate EPI Pond Edge Mixture. This mixture can be sown up to 4 g/m². The seed mixture is comprised of 80% grasses and 20% wildflowers and contains a total of 25 species. Alternatively, the Emorsgate EP1F Wildflowers for Pond Edges seed mixture can be used alongside the EM10 Mixture. The EP1F mixture is sown at a rate of 1.5g/m². Woodland edge: Along the woodland edge (see Figure 2) the Emorsgate EW1 Woodland Mixture will be used to seed more shade-tolerant plants. The EW1 Woodland Mixture is comprised of 20% native wildflowers and 80% slow growing grasses and includes 24 species. This mixture can be sown at a rate of 4g/m². - The seeds will be surface sown and can be applied by machine or broadcast by hand and firmed in by treading or rolling, to give good soil/seed contact.



Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
								• Watering will be required while the seeds establish. • It is possible that the criteria above could meet good condition criteria if appropriately managed, however, we have set the target condition lower, as it may be more realistic in practice to achieve this criteria.
Traditional orchard	18	0.0568	High	Medium	Moderate	20	Criteria met: C, D, E, F, H Criteria not met: A, B, G	• A traditional orchard will be created within the development boundary. The traditional orchard will meet the UKHab definition for this habitat type. • To create a traditional orchard habitat parcel, the habitat should first be prepared and seeded as outlined above for other neutral grassland. The habitat should then be supplemented with the planting of native fruit trees to include a selection of crab apple (<i>malus sylvestris</i>), plum (<i>prunus domesticus</i>) and pear (<i>pyrus communis</i>). • A total of 10 native fruit trees will be planted within the 0.069 ha orchard area, spaced at approximately 8 m intervals to reflect a traditional orchard structure. • All native fruit trees will be planted in line with the following general principles: ○ Trees will be nursery grown, root balled specimen trees and will be between 1 and 3 years old at the time of planting; ○ Trees will be planted between November and March and spaced at approximately 8 m apart from other newly planted or existing trees and planted in small areas of clear ground with the surrounding grassland cut short to reduce competition for water and nutrients; and ○ Trees will be planted within individual planting pits. Each pit will be dug to the same depth as the container the root ball is placed in to prevent settlement and sinking post planting. The width of the pit will be a minimum of one and a half times as large as the root ball/container and up to a maximum of two times as wide (likely to be 30-45 cm deep and 45-60 cm wide). The soil used to back fill the pit will consist of 1/3 organic matter and 2/3 existing soil to 90% of the root ball height. ○ A mulch ring (1 m radius) could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low. • Trees will be planted with stakes, supporting straps and a biodegradable guard where appropriate to protect the trees from animal damage, ensure they are appropriately secured to the ground, and encourage vertical growth.
Lowland mixed, deciduous woodland	3 and 22	0.0755 total	High	Medium	Moderate	30+	Total score = 27	• Woodland that, once established, will meet the criteria of a lowland mixed deciduous woodland (as per the UKHab definition) is proposed within the development boundary (see Figure 2). The woodland will be comprised of native species with a variety of species forming the canopy, shrub and ground layers. The new woodland will connect to an existing parcel of woodland within the development boundary.



Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
								- The method of soil preparation and planting should be based on professional judgement and finalised at the time of planting and sampling of the soil conditions. As such, the methodology and specification outlined provides a standard approach to woodland creation and may be refined to reflect soil and drainage conditions. Tree planting - Trees will be planted as part of the woodland creation in-line with the following specification and methodology: - Trees will be planted between November and March and spaced at least 5 m apart from other newly planted or existing trees and planted in small areas of clear ground (approximately 1 m) with the surrounding grassland (where applicable) cut short to reduce competition for water and nutrients. - The following species and planting compositions should be included in the woodland creation: Canopy layer: Pedunculate oak, rowan, field maple, hornbeam. Shrub layer: Hazel, hawthorn, blackthorn. - Trees and shrubs will be planted within individual planting pits. Each pit will be dug to the same depth as the container the root ball is placed in to prevent settlement and sinking post planting. The width of the pit will be a minimum of one and a half times as large as the root ball/container and up to a maximum of two times as wide (likely to be 30-45 cm deep and 45-60 cm wide). The soil used to back fill the pit will consist of 1/3 organic matter and 2/3 existing soil to 90% of the root ball height. A mulch could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low. - Trees will be planted with stakes, supporting straps and a biodegradable guard where appropriate to protect the trees from animal damage, ensure they are appropriately secured to the ground, and ensure vertical growth. - If there are undesirable ground flora communities or species present, these can be removed. This can be achieved with minimal disturbance with the use of a harrow or rake to expose fresh soil and dislodge plants. This will not be required in areas where there is a recognisable woodland ground flora present. Establishing ground flora - To establish a typical woodland ground flora, approximately 50% of the ground surface should comprise a mosaic of bare ground, leaf litter and moss. - To aid establishment of woodland ground flora the Emorsgate EW1 Wildflowers for Woodland Mixture will be used. This mixture can be sown at a rate of up to 40kg/ha or equivalent of 4g/m². - The seeds will be surface sown and can be applied by machine or broadcast by hand and firmed in by treading or rolling, to give good soil/seed contact.



Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
								Seeding will ideally take place between autumn or spring in suitable weather and ground conditions.
Individual trees	24 - 33	0.0407 total	Medium	Medium	Moderate	27	- Criteria met: A, B, D, F - Criteria not met: C, E	- Ten individual native trees are proposed within the development boundary (see Figure 2). These may include field maple (<i>Acer campestre</i>), pedunculate oak (<i>Quercus robur</i>), hornbeam (<i>Carpinus betulus</i>), goat willow (<i>Salix caprea</i>), and wild cherry (<i>Prunus avium</i>) planted within the proposed other neutral grassland parcels. If alternative species are used, they must comprise locally occurring native species appropriate to the site's soil type and conditions. - All native trees will be planted in line with the following general principles: - Trees will be nursery grown, root balled specimen trees and will be between 1 and 3 years old at the time of planting; - Trees will be planted between November and March and spaced at least 5 m apart from other newly planted or existing trees and planted in small areas of clear ground with the surrounding grassland cut short to reduce competition for water; and - Trees will be planted within a planting pit. The pit will be dug to the same depth as the container the root ball is placed in to prevent settlement and sinking post planting. The width of the pit will be a minimum of one and a half times as large as the root ball/container and up to a maximum of two times as wide (likely to be 30-45 cm deep and 45-60 cm wide). The soil used to back fill the pit will consist of 1/3 organic matter and 2/3 existing soil to 90% of the root ball height. A mulch could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low. - Trees will be planted with stakes, supporting straps and a biodegradable guard where appropriate to protect the trees from animal damage, ensure they are appropriately secured to the ground, and encourage vertical growth. Deer fencing will be installed around the perimeter of the development boundary which will further safeguard the proposed individual trees.



6. Enhancement of Retained Habitats

6.1.1 The enhancement of retained habitat proposed as part of the development that falls within the scope of the HMMP are outlined below in Table 5 and displayed in Figure 2.

Table 5 - Habitat enhancement proposed within the development boundary.

Proposed Habitat Type	Baseline Habitat Reference Number(s)	Enhanced Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N) or Total Score	Specification and Method of Creation.
Lowland mixed deciduous woodland	1, 2, 4, 5, 7, 8, 9, 10, 11 and 12.	4.0326 total	High	Medium	Moderate	20	31	- The enhancement of lowland mixed deciduous woodland is proposed as part of the development. The method of enhancement focuses on: establishing woodland understorey with native woody plants, establishing a woodland ground flora and the removal of INNS (<i>Rhododendron ponticum</i>), management of canopy cover and composition, and re-establishing woodland processes such as natural decay. Removal of INNS (<i>Rhododendron ponticum</i>) (Baseline habitat parcels: 1 – 12) <i>Rhododendron ponticum</i> is abundant across the woodland parcels. To enhance the understorey of the woodland parcels, this invasive species should be removed. - Rhododendron should be removed in the spring or autumn when soil is moist. With protective gloves, use garden loppers to remove all the stems and branches, leaving only the main stem (leaving about 2 to 3 inches of the stump above the soil). Lowland mixed deciduous woodland (baseline habitat parcels: 2, 4, 7, 8, 9 and 11) - Stands of <i>Rhododendron ponticum</i> will be removed from the lowland mixed deciduous woodland using a small excavator to remove root ball and prevent regrowth. Works will be undertaken sensitively to minimise disturbance to retained trees and ground flora. - Arisings from the removal of <i>Rhododendron ponticum</i> will be removed from site by a licensed contractor and disposed of at a suitably permitted facility. Material will not be stockpiled or composted on site, and any handling will be undertaken in a biosecure manner to prevent regrowth or spread. - All tools, machinery, and footwear should be cleaned after working in infested areas to remove soil and plant fragments that could facilitate the plant's spread. Lowland mixed deciduous woodland – ancient woodland (baseline habitat parcels: 1, 5, 10 and 12) - With the use of a shovel, dig a small trench around the rhododendron stump. Insert the shovel at an angle, with the tip going under the rhododendron root ball. Push the shovel handle down to leverage the root ball and shrub stump out of the ground. Dispose of the stump and root ball, and monitor the area for new sprouts, digging them out as they appear.



							• Alternatively, the stump can be cut even closer to the ground, leaving just half an inch protruding. A herbicide, such as glyphosate, triclopyr, or 2,4-D, can then be applied to the stump with a paintbrush. Monitor the stump for new growth and spray any seedlings with herbicide. Protective clothing should be worn, including goggles, rubber gloves, long trousers, and a long-sleeved shirt when working with herbicides. • A third option for removal is called stem injection which involves injecting a small, measured dose of herbicide into a pre-drilled hole in the stem of the plant, causing it to die back. This method ensures that the herbicide is delivered directly to the plant, reducing the risk of impacting other plants. Once the rhododendron dies, its trunks can be removed and disposed of accordingly. • Arisings from the removal of <i>Rhododendron ponticum</i> will be removed from site by a licensed contractor and disposed of at a suitably permitted facility. Material will not be stockpiled or composted on site, and any handling will be undertaken in a biosecure manner to prevent regrowth or spread. • All tools, machinery, and footwear should be cleaned after working in infested areas to remove soil and plant fragments that could facilitate the plant's spread. Managing the woodland canopy • Selective management of the woodland canopy will be undertaken to increase light availability at ground level and create suitable conditions for the establishment of understorey and the enhancement of ground flora planting (as detailed in below). Works will comprise targeted thinning of selected trees and removal of suppressed or poorly formed individuals, with priority given to retaining healthy native specimens and maintaining overall woodland structure. • Canopy openings will be irregular in shape and size to reflect natural woodland dynamics and avoid creating abrupt edges or uniform gaps. Retained trees will be protected during operations. Machinery should not be used in ancient woodland parcels and if used in other woodland parcels will be restricted to designated routes to minimise soil compaction and root damage. Re-establishing woodland understorey • To enhance the understorey of the woodland parcels a mix of native shrubs including blackthorn, hawthorn and hazel will be introduced into the woodland to complement the existing native shrubs (which are sparsely distributed). • The following method of creation will be followed: ○ The woodland shrubs will be planted with transplanted root ball shrubs. Shrubs will ideally be planted between November – March in suitable weather conditions. It may be possible to plant at other times of the year where there are sustained periods of suitable weather that provide appropriate conditions for planting. ○ Shrubs will be planted in planting pits and include the following: ▪ The vegetation at the location of the planting pit will first be removed to reduce the competition with planted shrubs.
--	--	--	--	--	--	--	--



							▪ The planting pit will be dug to the same depth as the container the root ball is placed in to prevent settlement and sinking post planting. The width of the pit will be a minimum of one and a half times as large as the root ball/container and up to a maximum of two times as wide (likely to be 30-45 cm deep and 45-60 cm wide). ▪ Professional judgment should, however, be used to determine the width and depth of the pit at the time of planting based on the site soil conditions and available space. • The soil used to back fill the pit will consist of 1/3 organic matter and 2/3 existing soil to 90% of the root ball height. A mulch could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low. Enhancing the woodland ground flora (non-ancient woodland parcels only) • The following recommendations are only for non-ancient woodland parcels. • Enhancement of the lowland mixed deciduous woodland will focus primarily on structural management and natural regeneration. Where areas of bare ground or species poor ground flora are present, locally appropriate native woodland plants or a suitable woodland seed mix of local provenance may be introduced to increase botanical diversity. The seeds will be surface sown and can be applied by machine or broadcast by hand and firmed in by treading or rolling, to give good soil/seed contact. • Where there are undesirable ground flora communities or species these can be removed. To re-establish a typical woodland ground flora the ground should have gaps of at least 50% including bare ground, leaf litter and moss. This can be achieved with light disturbance with the use of a harrow or rake to expose fresh soil and dislodge plants. • Seeding will ideally take place between autumn or spring in suitable weather conditions. Deadwood and monolith creation • Standing and fallen deadwood will be retained and increased within the lowland mixed deciduous woodland to enhance structural complexity and provide habitat for invertebrates, fungi, and other woodland fauna. Where appropriate, selected trees will be converted into monoliths by reducing the crown to a stable height, creating standing deadwood features that mimic natural veteranisation processes. • To expedite the decay process and increase the availability of microhabitats, retained deadwood will be deliberately damaged through techniques such as ring-barking, partial bark removal, or the creation of fissures and cavities using hand tools. These measures will encourage colonisation by fungi and invertebrates and accelerate the formation of decay features, including rot pockets and crevices. • Felled timber will be retained on site as fallen deadwood and arranged in shaded and partially sunlit locations to provide a range of moisture and temperature conditions (as outlined in section 6.2). Protecting woodland parcels • Deer-exclusion fencing will be installed around the site perimeter to protect areas of lowland mixed deciduous woodland and ancient woodland parcels from deer browsing pressure, thereby supporting woodland enhancement and regeneration. Fencing will be installed following checks to ensure no deer are present within the enclosed area
--	--	--	--	--	--	--	---



								and will be retained only until planting and natural regeneration are successfully established, after which it will be removed.
Lowland mixed deciduous woodland	3 and 6.	0.670 total	High	Medium	Good	20	33	The specification and method of creation for parcels 3 and 6 will be as that outlined above for parcels 1, 2, 4, 5, 7, 8, 9, 10, 11 and 12.



6.2 Additional Ecological Enhancements

6.2.1 The additional ecological enhancements that are proposed as part of the development, that do not form part of mandatory net gain requirements, are outlined below in Table 6 and displayed in Figure 2.

Table 6 – Additional ecological enhancements to be installed within the development boundary.

Proposed Habitat Type	Quantity	Location	Height	Aspect	Brand	Model	Notes and specifications
Refugia/ hibernacula	11	Within other neutral grassland and mixed scrub.	Ground level	N/A	N/A	N/A	- To act as resting and potential hibernating place for reptiles and amphibians including great crested newts and provide habitat for invertebrates. - The hibernacula/ refugia will be formed by scraping the topsoil away and creating a trench of up to 25 cm, this depth has been selected to avoid potential water logging. - A mixture of rubble, recycled logs, tree roots and loose soil could be placed in the trench and covered in soil, allowing rubble and wood to poke through in places in order to create environmental heterogeneity and crevices and voids. In some areas soil will be compacted and elsewhere it will be left loose. The hibernacula will then be finished with a covering of turf and supplementary seeding.
Bat boxes	13	Mature trees in lowland mixed deciduous woodland parcels.	3 – 4 m	North and East	Schwegler	1FF	- To be installed in a dark location not subject to artificial lighting. - Location of instalment to have a clear drop zone free of vegetation for emerging bats.
Soil banks	6	Within other neutral grassland and mixed scrub.	Ground level	Any	N/A	N/A	- Six soil banks of various sizes are proposed to introduce topographical diversity, create differing soil moisture levels and encourage the establishment of ecosystem function. These banks are to be created in open, unshaded areas within the proposed other neutral grassland and mixed scrub. - To create these banks, stone will be placed on the ground and then covered in a mix of subsoil, topsoil and aggregates to create varying textures, nutrient levels and free draining elements. The soil removed during the excavation of the pond could be re-used for this purpose. - These banks will lead to improved grassland diversity and provide provisions for reptiles, amphibians and invertebrates.
Deadwood log piles and log stacks	25 log piles and 10 log stacks	Within lowland mixed deciduous woodland parcels.	Ground level	N/A	N/A	N/A	- Following woodland management within the site, felled timber will be retained and utilised to form deadwood log piles within the development boundary. - In addition, felled timber arising from the same woodland management works will be used to create log stacks arranged to radiate outward from the dwelling as a key design feature of the proposed development. - These log piles and log stacks will provide provisions for reptiles, amphibians and invertebrates.
Green roof	1	On proposed dwelling	Roof height	N/A	N/A	N/A	The building design incorporates an intensive Green / Blue Hybrid Roof; however, the full roof specification has not yet been confirmed and will be detailed in the final version of this document.



Integrated bat boxes	2	To be integrated within the new proposed dwelling.	At least 4 m from the ground	South, south-east or south-west	Schwegler	1w1 summer and winter bat box	- To be installed in a location free from artificial lighting. - Location of instalment to have a clear drop zone free of vegetation for emerging bats.
Integrated house sparrow boxes	2	To be integrated within the new proposed dwelling.	2-4 meters	Between north and east	Vivara Pro	WoodStone House Sparrow Nest box	To include two integrated artificial sparrow boxes on the proposed dwelling. The boxes should be placed in a quiet location on the house oversailing vegetated garden habitats.
Integrated insect block	1	To be integrated within the new proposed dwelling.	At least 2 m from the ground	Southern aspect	Vivara Pro	WoodStone Insect Block (or similar alternative)	To be positioned in a sunny location, south facing, with no vegetation in front of the insect block, placed at least 2 meters from the ground with no upward limit.



7. Works Schedule - Habitat Creation

7.1.1 The schedule of proposed habitat creation within the site is outlined below in Table 7.

Table 7 – Proposed habitat creation schedule.

Task			Proposed Timings			
Proposed Action	Habitat Parcel Number	Undertaker	Development Phase	Optimal Timing	Likely Implementation	Considerations
Proposed BNG Habitat Creation						
Mixed scrub	1, 2, 8, 9 and 23	Appointed contractor	Post construction landscaping	Spring or Autumn	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Lowland mixed deciduous woodland	3 and 22	Appointed contractor	Post construction landscaping	November—March	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Other neutral grassland	10 - 17	Appointed contractor	Post construction landscaping	Spring or Autumn	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Traditional orchard	18	Appointed contractor	Post construction landscaping	November—March	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Pond	4	Appointed contractor	Construction phase	August–October	Anticipated 2026	• Works will not be undertaken during periods of peak amphibian breeding activity.
Individual trees	24 - 33	Appointed contractor	Post construction landscaping	November - March	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Proposed BNG Habitat Enhancement						
Lowland mixed deciduous woodland	Baseline habitat parcels 1 - 12	Appointed contractor	Post construction enhancements	Spring or Autumn	Anticipated 2026	• Appropriate weather conditions for successful establishment.
Additional Ecological Enhancements						
Refugia/ hibernacula	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2026	• Appropriate weather conditions for successful establishment.



Bat boxes	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2026	No additional considerations.
Soil banks	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2026	No additional considerations.
Deadwood log piles and log stacks	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2026	No additional considerations.
Integrated bat boxes	19	Appointed contractor	Construction phase	Any time of year	Anticipated 2026	No additional considerations.
Integrated house sparrow boxes	19	Appointed contractor	Construction phase	Any time of year	Anticipated 2026	No additional considerations.
Integrated insect box	19	Appointed contractor	Construction phase	Any time of year	Anticipated 2026	No additional considerations.
Green roof	19	Appointed contractor	Construction phase	Spring or Autumn	Anticipated 2026	Appropriate weather conditions for successful establishment.



8. Risk Management Strategy

8.1.1 A risk register associated with creating, enhancing and managing each habitat type is shown in Table 8.

Table 8 –Risk register and remedial measures for proposed habitat creation and enhancement.

Habitat type	Risk Factor	Trigger for Action	Remedial Measure
Lowland mixed deciduous woodland	Spread or re-establishment of invasive non-native species (e.g., <i>Rhododendron ponticum</i>) resulting in continued spread within the site.	Detection of invasive non-native species within any created or enhanced parcel during routine monitoring; and/or evidence of regrowth or spread following initial removal works.	- Identify the species present and map the extent of colonisation. - Remove INNS using hand tools. - Ensure all INNS plant material is disposed of in a biosecure manner to prevent further spread. - Increase the frequency of monitoring within affected habitat parcels to assess the effectiveness of control measures. - Restore gaps with native woodland ground flora species appropriate to soil type, to reduce opportunities for recolonisation.
Lowland mixed deciduous woodland	Poor establishment of newly planted trees / scrub.	Newly planted tree / shrub mortality exceeds 15% in any habitat parcel within years 1-10.	- Undertake a second round of planting, replacing failed specimens on a like-for-like basis. - Inoculate soils surrounding failed trees/shrubs with mycorrhizal fungi prior to replanting. - If establishment fails following a second round of planting, undertake soil testing within the affected habitat parcel to inform revised management or soil preparation methods.
- Traditional orchard - Individual trees - Mixed Scrub	Damage to vegetation from deer following the removal of deer fencing	Browsing damage observed on >15% of vegetation within a habitat parcel.	- Re-install deer fencing around damaged habitat parcels. - Establish regular tree / scrub monitoring plans to assess browsing impacts.
Other neutral grassland	Encroachment of scrub species	Scrub cover exceeds 5%	- Implement targeted scrub control using hand tools or low-impact mechanised tools outside of the breeding bird season. - Ensure cut material is removed to reduce nutrient inputs back to the soil.
	Poor establishment and/or management of other neutral grassland resulting in reduced species diversity and a homogenous sward.	>10% of grassland area bare or supports failed seedlings at first monitoring visit, and/or a decline in indicator species diversity or failure to achieve the target condition for other neutral grassland within the required timeframe (i.e. Poor condition parcels by Year 2 or Moderate condition parcels by Year 5).	- Assess and confirm cause of poor establishment (seed quality, soil compaction, moisture regime, soil contamination, or inappropriate management). - Undertake re-sowing under suitable growing conditions, using the same approved seed mix. - Delay sowing until optimal seasonal window if necessary. - If establishment fails following a second sowing, undertake soil testing within the affected habitat parcel to inform revised management or soil preparation methods. - Implement adaptive management including adjustment of cutting regimes and introduction of delayed hay cuts.
Pond	Poor water quality (nutrients/contaminants) resulting in excessive algal growth.	Persistent algal blooms recorded during monitoring; and/or Evidence of nutrient enrichment (e.g. dense duckweed, filamentous algae or reduced water clarity).	- Identify and manage nutrient sources from surrounding land uses. - Increase buffer vegetation around ponds to intercept nutrient inputs. - Remove excessive algal or organic material where necessary. - Adjust pond shading and circulation to reduce stagnation. - Monitor water quality indicators annually to inform adaptive management.
	Poor establishment of emergent, submerged and floating vegetation.	Emergent, submerged or floating plants (excluding duckweed) cover less than 50% of the pond area which is less than 3 m deep by the end of the second growing season.	- Review planting methods, timing and species selection. - Install temporary protection from grazing or trampling if required. - Manage shading from surrounding vegetation to maintain suitable light levels. - Monitor vegetation establishment annually and adjust management accordingly.



	Colonisation of invasive non-native species (INNS)	Presence of INNS recorded during habitat monitoring.	• Identify the INNS present and assess the extent of colonisation. • Implement appropriate control measures in accordance with best practice. • Dispose of INNS plant material in a biosecure manner to prevent further spread. • Increase frequency of monitoring within affected habitat parcels to track effectiveness of control measures. • Review and adapt management prescriptions to reduce the likelihood of re-colonisation (e.g. improving ground cover, reducing disturbance or adjusting timing of works).
--	--	--	--



9. Habitat Management and Monitoring Plan

9.1.1 The on-going habitat management and monitoring requirements for the proposed habitat retention and creation are outlined below in Table 9. Annual audit frequencies are outlined in section 7.

Table 9 – Habitat management and monitoring plan for proposed habitat retention and creation and ecological enhancements.

Habitat Parcel(s)	Management Tasks	Management Timing			Responsibility
		Minimum Frequency	Timing	Duration	
Proposed Habitat Creation, Enhancement and Retention					
Other neutral grassland	- Once sown, any weed growth from the soil seed bank will be initially left which may aid the soil conditions beneath and provide shelter to the sown seedlings. Weeds will then be removed in late summer through mowing to ensure slower growing grasses are not smothered by weeds. - The other neutral grassland will then be kept short by mowing through the first winter until the end of March of the following year (with the modified grassland being cut to 50 mm in height once it reaches 100-150 mm) and the grass cuttings removed. Any residual perennial weeds such as docks will be dug out once the other neutral grassland has been cut short. - In the first year no cutting of the other neutral grassland will be conducted from spring through to late July/August to allow the sown species to flower. A cut will then take place in autumn. - In the second year and subsequent years, once the other neutral grassland has established, an early summer hay cut will be undertaken. A second cut can also be undertaken in late autumn if a denser structure is targeted in areas of the other neutral grassland. - Any cutting of the grassland should be undertaken with a two-stage cut, taking into account this habitat has the potential to be colonised by species of conservation concern. - In periods of prolonged drought, it may be appropriate to undertake additional watering while the grassland is established. - Any scrub should be managed and removed every 2 - 3 year to prevent encroachment into the other neutral grassland. - Additional scarification and seeding by hand may be appropriate where undesirable bare patches form or species poor areas form in subsequent years of management.	- Twice annually until established - Annually or twice annually once established - Scrub management every 2-3 years	Early summer; and/ or Autumn	30 Years	Appointed contractor
Mixed scrub	- Following planting, the mixed scrub parcels should be checked twice annually. This will include checking plant health, with any dead, dying or diseased plants removed and replaced on a like-for like basis. Spiral guards should be checked and replaced where missing or damaged. Furthermore, the soil at the location of planting should be checked for compaction. - Ground adjacent to mixed scrub habitats should be managed to remove any ‘weeds’ in order to reduce competition and increase sunlight. This should be undertaken by hand or with a targeted application of herbicide in the immediate vicinity of the plants by a suitably qualified contractor. - Weed control measures will continue until the establishment of the plants has been successful. - Where necessary, mixed scrub should be pruned to the desired size and shape. - Mixed scrub cutting will be conducted outside of the breeding bird season (i.e. not between 1st March and 31st August). Bramble and other perennial weeds will be controlled, as required. - The transitional edge between the scrub and adjacent other neutral grassland will be actively managed to maintain a well-developed, graded boundary. This will include: - Encouraging a gradual transition zone of scattered shrubs, tall herbs, and tussocky grasses to enhance structural diversity.	Twice annually once established	- Visit 1: March - Visit 2: September	30 years	Appointed contractor



	○ Preventing the development of an abrupt or hard edge by allowing limited natural regeneration and occasional selective cutting to maintain a mosaic of scrub and grassland elements. ○ Retaining patches of herbaceous vegetation and open ground to support invertebrates, reptiles, and small mammals.				
Individual (rural) trees	Newly Planted Trees • The health of the new trees should be checked at least annually to inform management and should include checks for foliage appearance, leaf size, leaf canopy density extension growth and girth development. • To ensure successful establishment of trees, twice weekly watering will be undertaken between April – October in the first two growing seasons. Watering must be sufficient to wet the entire root ball of the tree. Application and frequency of watering should be determined by recent weather events. In year three and thereafter watering may be required in periods of drought and should be accompanied by a check of the soil to ensure waterlogging is not causing signs of ill health to the tree. • Tree stakes and ties should be checked at least annually to assess stability and firmness to ensure that ties are performing effectively and not causing damage to the tree through chaffing or rubbing. Stakes should be placed at sufficient depth into the ground. Ties should be fitted and adjusted so they are not too tight to allow natural growth of the tree. Rubber bungs should be in place to ensure there is no contact between the stake and tree. • Any side shoots or epidermic growth on the proposed field maple trees will be pruned to maintain a clear stem between June – October until established. • Within the first three years, any trees found to be leaning will be replanted. In years two and three, tree stakes will be removed from established trees. • Any new tree, which within a 30-year period following planting, that dies, fails to thrive, becomes severely diseased or damaged will be replaced with a new tree of similar species and size.	• Twice annually	• Visit 1: February - March • Visit 2: May – early September	30 years	Appointed contractor
Traditional orchard	• The health of the new trees should be checked at least annually to inform management and should include checks for foliage appearance, leaf size, leaf canopy density extension growth and girth development. • To ensure successful establishment of trees, twice weekly watering will be undertaken between April – October in the first two growing seasons. Watering must be sufficient to wet the entire root ball of the tree. Application and frequency of watering should be determined by recent weather events. In year three and thereafter watering may be required in periods of drought and should be accompanied by a check of the soil to ensure waterlogging is not causing signs of ill health to the tree. • Tree stakes and ties should be checked at least annually to assess stability and firmness to ensure that ties are performing effectively and not causing damage to the tree through chaffing or rubbing. Stakes should be placed at sufficient depth into the ground. Ties should be fitted and adjusted so they are not too tight to allow natural growth of the tree. Rubber bungs should be in place to ensure there is no contact between the stake and tree. • Fruit trees should be subject to an annual pruning regime to maintain the balance between vegetative growth, fruiting and shading of the modified grassland. • To ensure the establishment of healthy, strong and well-balanced trees, pruning of crab apple and pear trees should include: ○ The cut back of side shoots to leave snags, 50-75 mm long with 2 – 3 buds in the first winter; ○ The cutting back of new shoots in the second winter to leave snags 50-75 mm long and previously pruned snags will be cut back to the trunk. This will be repeated in the third and fourth winters so that each year, the lowest branches are removed to increase the height of the stem; ○ Pruning back of 3 – 6 branches that are at least 20 cm apart on the trunk in the fifth winter (or when the lowest branches on the tree are at a height of 1.5-2 m) and prune each one back to an outward-facing bud. Remove the rest of the branches;	• Twice annually	• Visit 1: February - March • Visit 2: May – early September	30 years	Appointed contractor



	○ In years 5 – 10 the leader of each branch should be cut back to half of that season’s growth. Thin or weak shoots should be cut back to two buds to stimulate new shoot growth; ○ During the first 10 years, any fruit that grows should be removed to prevent branches from bending or energy being wasted on fruit growth. Furthermore, any branches that are weak, cross over other branches or that are diseased, should be removed; ○ Once trees reach maturity, large sections or whole limbs will be removed instead of detailed pruning (with up to 20% of wood removed) to open up the crown to allow light to reach all branches and allow the tree to produce a high fruit yield. ● To ensure the establishment of healthy, strong and well-balanced trees, pruning of plum trees should include the following: ○ Pruning for plum trees should be avoided in winter months (the tree dormant phase) as plum can be susceptible to frost damage and silver leaf disease and should be completed between May – September when the tree is actively growing. ○ Plum does not require as intensive formative pruning as crab apple or pear, however light pruning will be required while the tree establishes to create a strong trunk, framework branches and lateral branches. ○ Any branches that are weak, cross over other branches or are diseased should be removed. ○ Once trees reach maturity, large sections or whole limbs will be removed instead of detailed pruning (with up to 20% of wood removed) to open up the crown to allow light to reach all branches and allow the tree to produce a high fruit yield. ● Within the first three years, any trees found to be leaning will be replanted. In years two and three, tree stakes will be removed from established trees. ● Any new tree, which within a 30-year period following planting, that dies, fails to thrive, becomes severely diseased and damaged will be replaced with a new tree of similar species and size.				
Lowland mixed deciduous woodland	Created Lowland mixed deciduous woodland ● Newly planted trees should be managed and monitored as per the specification for individual trees outlined above. ● On-going management could include coppicing of scrub to ensure individual trees are allowed to establish. Furthermore, weed and grass management should be undertaken to ensure the establishment of woodland ground flora. Supplementary seeding may be required where bare patches form. Retained / enhanced Lowland mixed deciduous woodland ● As the woodland parcels proposed for enhancement are already established and have closed canopies, once the understory and ground flora enhancements have been implemented, minimal on-going management will be required, as suitable conditions already exist for these species to thrive. Ground flora may benefit from long term coppice management should the understory shrub layer become dominant and begin to suppress species diversity. The proposed deer fencing around retained and created woodland will be monitored annually and removed once browsing pressure no longer presents a risk to woodland establishment.	● Twice annually until established ● Annually once established	● Visit 1: March ● Visit 2: October	30 years	Appointed contractor
Pond	● Aquatic vegetation management and monitoring should include the following general principles: ○ Plants should be allowed to settle and establish for the first 2 years post development. ○ Thereafter, the cover of aquatic plants should be monitored with occasional intervention to manage the coverage of any species that are being dominant to the detriment of ecosystem function and diversity of the pond. Intervention will also serve the function of creating habitat diversity to maintain both covered and open areas in the pond. ○ Any required aquatic plant coverage removal should be done so by hand (with chemicals prohibited) or with use of a small rake.	● Twice annually	● September - January	30 years	Appointed contractor



	○ Aquatic vegetation removal should be completed in late autumn and winter taking into consideration the potential presence of amphibians. • To ensure there are no leaks to the pond, any trees growing in close proximity to the pond should be monitored and any new saplings removed. Furthermore, a review of established trees should be undertaken in case roots may be breaking the seal of the pond. • Water levels in the pond should be monitored annually, with particular focus on the draw down rate. While the interventions should ensure water levels are retained for longer periods of the year, it may be appropriate to introduce water to ensure aquatic plants are able to establish and that the newly formed deep central bowl retains water all year round. Water introduction should ideally not be chlorinated and should be sourced appropriately from a certified supplier to prevent the introduction of non-native species and fish. • A proportionate approach to maintaining water levels should be undertaken in the event the pond fails to hold water consistently.				
Additional Ecological Enhancements					
Hibernacula/ Refugia	• The condition and structure of the hibernacula/ refugia should be assessed to ensure it remains suitable for amphibians, reptiles and invertebrates. • Small hibernacula may require additional woody debris and turf to help establish and should be replaced like-for-like should any be inadvertently removed. • It may be appropriate to loosen some of the soil on and around the hibernacula should it become compacted over time.	• At time of audit	• Any time of year	A minimum of 5 years	Appointed contractor
Bat Box	• The bat boxes are designed to be self-maintained, and as such, cleaning will not be required. • The bat boxes proposed are very durable but should be checked at least annually (or at the time of audit) and on an ad hoc basis to ensure they are sufficiently mounted and are not damaged. Any damaged boxes should be replaced like-for-like.	• At the time of audit	• Any time of year	A minimum of 5 years	Appointed contractor
Soil banks	• The condition and structure of the soil banks should be assessed to ensure they remain suitable for reptiles, amphibians and invertebrates. • Soil banks should be kept free from excessive scrub or tree encroachment that could cause shading, root damage or collapse. • Vegetation cover should be managed to maintain a mosaic of bare ground and sparsely vegetated areas to support burrowing and sun-exposed microhabitats. • Compaction should be avoided; where areas become compacted, soils should be lightly loosened by hand to restore suitable structure.	• At the time of audit	• Any time of year	A minimum of 5 years	Appointed contractor
Deadwood log piles and log stacks	• Deadwood log piles and log stacks should be inspected during monitoring visits to ensure they remain intact and continue to provide suitable refugia for invertebrates, amphibians and small mammals. • Deadwood features should be retained in a partially shaded and undisturbed location to maintain moisture levels and structural complexity. • Additional woody material may be added periodically to maintain volume and habitat value as timber naturally decomposes over time.	• At the time of audit	• Any time of year	A minimum of 5 years	Appointed contractor
Integrated house sparrow boxes	• Clean the nesting box once a year, after the breeding season ends, between 1st September – 31 January. • The integrated sparrow boxes proposed are very durable but should be checked at least annually (or at the time of audit) and on an ad hoc basis to ensure they are sufficiently mounted and are not damaged. Any damaged boxes should be replaced like-for-like.	• At time of audit	• September-January	A minimum of 5 years	Appointed contractor
Integrated insect box	• The holes of the insect block should be kept clear from vegetation, by ensuring no plants are overgrowing or blocking the holes. • The holes of the insect block can be cleaned with a pipe cleaner at the end of the season (around late September to October) after all the bees have emerged.	• At the time of audit	• Any time of year	A minimum of 5 years	Appointed contractor



10. Auditing and Reporting

Responsibilities

- 10.1.1 Arun Ecology Ltd has assumed initial responsibility for the draft production of this HMMP. The HMMP and all management prescriptions will be informed by soil testing and in collaboration with the appointed contractor responsible for management activities.
- 10.1.2 The applicant will appoint an appropriately qualified ecologist to undertake any future audits.

Monitoring Method

- 10.1.3 A UK Hab Survey and BNG Condition Assessment will be undertaken to assess all retained and newly created and enhanced habitats within the development boundary against the target condition outlined within this HMMP. This assessment will be undertaken by a suitably qualified ecologist with botanical specialism defined here as having a minimum of a Level 4 FISC qualification.
- 10.1.4 A checklist will be used to monitor all other ecological enhancements (see Table 6) within the development boundary. The checklist will be completed by a suitably qualified ecologist to ensure all additional enhancements are created and are functioning as intended with any remedial actions that might be required.

Annual Monitoring Reporting

- 10.1.5 The annual audit and monitoring should be provided in a short report format. As a minimum this should include:
- Audit information, including the audit reference, date of completion and name of the organisation and author undertaking the audit;
 - A checklist of all habitats and ecological enhancements that fall within the scope of this HMMP;
 - The results of the UK Hab Survey and BNG Condition Assessment to determine if retained and newly created habitats meet the target condition; and
 - An overall conclusion on compliance with the HMMP and recommendations for any remediation, and furthermore, any subsequent updates to the HMMP.
- 10.1.6 It is recommended that an audit is undertaken in years 2, 5, 10, 15, 20, 25 and 30. Please note that annual management of all habitats until established as per Table 8 will still be required.
- 10.1.7 All audits should be kept as a digital record and made available to the local planning authority to ensure compliance with the conditions of planning.

Updating of the Habitat Management and Monitoring Plan

- 10.1.8 Professional judgment should be used to decide when it is appropriate to update the HMMP. It may be appropriate to update the HMMP annually, where there are changes proposed to the annual management regime, or at the time of audit. There will be no requirement to update the HMMP where there are no remedial actions required.